Specimen Collection, Storage and Shipment for Molecular and Serological Testing for Zika Virus							
Specimen Type	Collection	Minimum Quantity	Specimen Preparation	Specimen Storage & Shipment			
Serum	Serum Separator Tube SST (GOLD or TIGER Top)	2-3 mL minimum for RT-PCR and serology	Centrifuge whole blood tubes within 2 hrs. from collection then pour off serum into sterile tube to	Refrigerate serum (2-8°C) following collection; ship with cold packs within 24 hrs collection to MA SPHL. If storage or transport will exceed 24 hrs. or if			
	Serum tube (RED Top) When possible collect two tubes each containing 2 to 5 ml blood, then process and transfer serum into sterile plastic tube.	1 mL minimum for pediatric cases – NOTE: cord blood serum is no longer acceptable	avoid hemolysis **	specimen was already frozen, store frozen at -20°C (-70°C if possible) and ship to MA SPHL on dry ice as a Category B.			
CSF	Sterile collection Clear Top, Red/Light Gray Top tube or plastic tube with screw cap (2.0 micro tube or 3-5 mL plastic screw cap tube	1.0 mL minimum 3.0- 5.0 mL preferred	CSF specimens must be submitted in a tightly sealed sterile collection tube; if in a screw or snap top wrapped with paraffin to avoid leakage.	Refrigerate CSF (2-8°C) following collection; ship with cold packs within 24 hrs collection to MA SPHL. If storage or transport will exceed 24 hrs. or if specimen was already frozen, store frozen at -20°C (-70°C if possible) ship to MA SPHL on dry ice; as a			
Urine	Sterile urine cup or conical tube	3-5 mL of urine (more is acceptable) 1 mL minimum for pediatric cases	Urine specimen must be submitted in a tightly sealed sterile container wrapped with paraffin to avoid leakage.	Refrigerate urine (2-8°C) following collection; ship with cold packs within 24 hrs collection to MA SPHL. If storage or transport will exceed 24 hrs. or if specimen was already frozen, store frozen at -20°C (-70°C if possible) and ship to MA SPHL on dry ice as a Category B.			
Amniotic fluid	Collect via amniocentesis and aseptically transfer to sterile conical tube	0.4 mL of amniotic fluid Standard 15-20 mL in conical tube preferred	Submit in a tightly sealed sterile container (i.e. sterile conical tube wrapped with paraffin to avoid leakage).	Refrigerate amniotic fluid (2-8°C) following collection; ship with cold packs within 24 hrs collection to MA SPHL. If storage or transport will exceed 24 hrs. or if specimen was already frozen, store frozen at -20°C (-70°C if possible and ship to MA SPHL on dry ice as a Category B.			

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Tissue [†]	Placental and fetal	Several full thickness	Please include sections of	
Formalin fixed tissue or Formalin-fixed paraffin-embedded tissue blocks ‡	membranes	pieces including at least 3 full thickness pieces (0.5–1 cm x 3– 4 cm in depth) from middle third of placental disk and at least 1 from the placental disk margin§ 5 x 12 cm strip of fetal membranes	the placental disk, fetal membranes, and pathologic lesions when possible. Also include information about placenta weight and sample both maternal and fetal side of the placenta.	Label all specimens to identify location of sampling site. Fix specimens in formalin*. Volume of formalin used should be about 10x mass of tissue. Place in 10% neutral buffered formalin for a minimum of 3 days. Once fully fixed the tissue can be transferred to 70% ethanol.
	Umbilical cord	4 or more 2.5 cm segments of cord	Umbilical cord segments should be obtained proximal, middle, and distal to umbilical cord insertion site on the placenta.	Storage and shipping at room temperature. Do not ship with frozen specimens.

^{**} Limitation: Hemolysis may interfere with test performance. To avoid hemolysis, separate and pour off serum within 2 hrs post collection.

†For placental testing on pregnant women with confirmed or equivocal Zika virus testing or women tested/exposed outside of the 12-week testing window: Multiple full thickness sections of placenta including placental disk, membranes, umbilical cord, and any pathologic lesions when possible. Tissues collected from products of conception or fetuses will depend on the gestational age of the fetus, the specific circumstances, and the result of any other tests. Guidance on specific tissues to collect is available through the MDPH Epidemiology Line at 617-983-6800.

Please note that fresh frozen tissue is NOT an acceptable specimen for Zika virus testing and should not be submitted.

‡If shipping body fluids with formalin fixed tissue, please package separately to account for the different temperature requirements.

§ As the distribution of Zika virus in tissue may be extremely localized, it is critical that multiple sections of formalin-fixed placental, fetal membranes and umbilical cord tissues be submitted for evaluation.

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Additional Information:

- Specimens collected from individuals for Zika virus testing may be transferred within the U.S. as Category B Biological substances in accordance with
 Department of Transportation Hazardous Materials Regulations (49 CFR Part 171-180). Guidance for packaging samples in accordance with Category B
 Biological substance requirements can be found in the CDC/NIH Publication Biosafety in Microbiological and Biomedical Laboratories, 5th edition.
 Additional information about the Department of Transportation Hazardous Materials Transport Regulations may be found
 at https://www.transportation.gov/pipelines-hazmat.
- Zika virus is an RNA virus. When possible -70°C is optimal for RNA stability. However, if your facility does not have access to -70°C, store frozen at -20°C.
- All samples should be submitted with a COMPLETED SS-SLI-1-13 Specimen Submission Form http://www.mass.gov/eohhs/docs/dph/laboratory-sciences/general-submission-form.pdf and couriered or shipped to the address on the form. Please ensure that all sections of the form are complete.

Clinicians: As an arboviral disease, Zika virus is a nationally notifiable condition. Healthcare providers are encouraged to report even suspect Zika cases to their state or local health department to facilitate diagnosis. Please contact the MDPH Epidemiology Line at 617-983-6800, available 24/7.